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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* JOANNES LEONARD LINDEN, GREGORY  
ROBERT ALCOTT, EDWARD ALOYS HAMERS, and  
MAURITIUS CORNELIS MARIA VAN DE SANDEN

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Appeal 2011-006008  
Application 10/501,225  
Technology Center 1700

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Before ROMULO H. DELMENDO, KEVIN F. TURNER, and  
JEFFREY B. ROBERTSON, *Administrative Patent Judges*.

ROBERTSON, *Administrative Patent Judge*.

DECISION ON APPEAL

## STATEMENT OF CASE

Appellants appeal under 35 U.S.C. § 134 from a rejection of claims 1, 3-5, 8-10, 12, 17-22, and 34-35. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

## THE INVENTION

The claims are directed to methods for the manufacture of hybrid coatings and to devices for the manufacture thereof. (Spec. 1, ll.1-2.)

Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method for applying a hybrid coating to a substrate, which coating comprises  
an inorganic and an organic component and which inorganic component comprises nanoparticles, wherein precursors for said organic and inorganic components are activated in two or more separate plasma sources for plasma activated deposition of a chemical vapor phase, wherein said activated precursors are combined before they are deposited on the substrate from the chemical vapor phase for forming the coating, and wherein the inorganic component is generated in a high electron density high-frequency plasma and wherein the high electron density high-frequency plasma is pulsed.

(Appeal Brief, Claims Appendix<sup>1</sup> 15.)

## THE REJECTION

The Examiner rejected claims 1, 3-5, 8-10, 12, 17-22, and 34-35 under 35 U.S.C. § 103(a) as unpatentable over Yamada et al. (US 5,024,927,

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<sup>1</sup> Appeal Brief filed March 15, 2011, hereinafter “App. Br.” and “Claims App’x,” respectively.

issued June 18, 1991) in view of Saito et al. (US 5,021,114, issued June 4, 1991) and further in view of Otto et al. (US 5,643,638, issued July 1, 1997). (Examiner's Answer, dated April 6, 2011, "Ans." 3-10.)

#### ISSUE

The Examiner found that Yamada discloses Appellants' claimed hybrid coating because, *inter alia*, Yamada teaches a heat-radiation layer made of a carbon-based material in which finely-divided metallic particles having particle size of 50 nm or less are dispersed. (Ans. 4.) The Examiner found that Yamada does not teach that the precursors for organic and inorganic component are activated by two or more separate plasma sources. (Ans. 5.) The Examiner found that Saito teaches activating precursors with two or more separate plasma sources because Saito teaches that when two different gas precursors, a gas difficult to activate and a gas easy to activate, are used for depositing a coating film, activating the gases independently of each other using separate plasma sources can result in the formation of a film at a high speed without involving deterioration in the film quality. (Ans. 5.)

The Examiner found that the difficult to activate precursor of Yamada may include a precursor for either an organic or inorganic component depending on particular structures. (Ans. 6.) The Examiner determined that it would have been obvious to one of ordinary skill in the art to have carried out plasma chemical co-vapor deposition of the hybrid heat radiation layer of Yamada by pre-activating the difficult to activate precursor in a separate activating chamber and introducing the pre-activated precursor together with a precursor that is easy to activate into a reaction chamber containing a

substrate to be coated with the expectation of depositing a coating film of high quality uniformly at an increased speed, as taught by Saito. (Ans. 6.)

Appellants argue that none of the cited references, either alone or in combination, describes precursors for inorganic and organic components being activated in two or more separate plasma sources before being deposited on the substrate. (App. Br. 9-10.) Appellants also argue that the Examiner has not provided an adequate reason as to why one of ordinary skill in the art would have combined the cited prior art references. (App. Br. 11.)

Therefore, the dispositive issue on appeal is:

Whether the Examiner erred in determining that Yamada in view of Saito would have rendered obvious activating organic and inorganic components in two or more separate plasma sources, as recited in claim 1?

#### PRINCIPLES OF LAW

The examiner bears the initial burden of factually supporting any prima facie case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). The key to supporting any prima facie case of obviousness under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) noted that the analysis supporting a rejection under 35 U.S.C. § 103 should be made explicit. “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 418 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

## ANALYSIS

We agree with Appellants that the Examiner has failed to establish a prima facie case of obviousness. Specifically, the Examiner has not adequately explained why one of ordinary skill in the art would have combined Yamada with Saito to arrive at Appellants' invention. While Yamada teaches its heat radiation layer can be formed by multiple known methods (Col. 11, ll. 36-44), Yamada does not teach activating its organic and inorganic components in two or more separate plasma sources. Saito also does not teach activating organic and inorganic components in two or more separate plasma sources. Rather, Saito generally discloses that two generically classified gases, a gas difficult to activate and a gas easy to activate, can be activated separately. (Col. 14, l. 34 – Col. 15, l. 7.)

The Examiner has not shown that one of ordinary skill in the art would have recognized a correlation between gases easy to activate and difficult to activate as taught by Saito and the inorganic and organic components of the heat radiation layer of Yamada. In this regard, Saito does not describe its use of two plasma sources as being applicable to separately activated organic and inorganic components, or further, that its high electron density high-frequency plasma source would be used to activate an inorganic component, as recited in claim 1. The Examiner has not shown that the general concept in Saito is particularly applicable to organic and inorganic components as disclosed in Yamada absent hindsight. *See KSR*, 550 U.S. at 421.

As such, the Examiner has failed to establish a prima facie case of obviousness with respect to claim 1, and for similar reasons, the Examiner

has failed to establish a prima facie case of obviousness with respect to the remaining dependent claims.

### CONCLUSION

Appellants have demonstrated that the Examiner did not sufficiently establish that Yamada in view of Saito would have rendered obvious activating organic and inorganic components in two or more separate plasma sources, as recited in claim 1.

### DECISION

We reverse the Examiner's rejection of claims 1, 3-5, 8-10, 12, 17-22, and 34-35 under 35 U.S.C. § 103(a) as unpatentable over Yamada in view of Saito and further in view of Otto.

### REVERSED

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